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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,824	06/11/2001	Vishnu Balan	LSI-01-166	3472

7590 07/16/2003

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EXAMINER

GLENN, KIMBERLY E

ART UNIT	PAPER NUMBER
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2817

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/879,824

Applicant(s)

BALAN ET AL.

Examiner

Kimberly E Glenn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-21 is/are allowed.
- 6) ☒ Claim(s) 22,27 and 32 is/are rejected.
- 7) ☒ Claim(s) 23-26 28-31 33-36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 22, 27, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii US Pat. 5,349,309 (of record).

1. Fujii (fig. 6) disclose a circuit for controlling a frequency of a crystal oscillator 34 being coupled between an input node and output node, the circuit comprising a first capacitor array (48-54) coupled between the input node and a reference voltage (ground), the first capacitor array including a first plurality of switched capacitors (36-41 and 49 - 54) and having a first total capacitance; a second capacitor array (56-61) coupled between the output node and the reference voltage (ground), the second capacitor array including a second plurality of switched capacitors (42-47 and 56-61) and having a second total capacitance; a input for receiving a frequency control signal and a capacitance controller 6 (shown in fig. 2) coupled to the first capacitor array and the second capacitor array for switching a switched capacitor in the first capacitor array and a switched capacitor in the second capacitor based on the frequency control signal (INO -IN5)The method steps to the above-disclosed apparatus are inherent. (See figures 2 and 6 and column line 63 through column 5 line 19)

2. Thus Fujii is shown to teach all the limitations of the claims with the exception of the controller alternately switching a switched capacitor in the first capacitor array and a switched capacitor in the second capacitor array.

It would have been obvious to one of ordinary skill in the art, that once the input 1 changes that the adder 6 (controller) would output a new signal (IN0 through IN6), which would require switching of the weighted capacitors in both capacitor arrays. For example, when the frequency of the phase locked loop changes, the adder (controller) would alternately switch between the switches 36 and 42 being closed and remaining switches being opened or switches 37 and 43 being closed and the remaining switches being opened in order to selected a desired weighted capacitance. In the first instance, when switches 36 and 42 are closed, the capacitance of the first and second capacitor array would be $2C$. While in the second instance, when the switches 37 and 43 are closed, the capacitance of the first and second capacitor array would be $3C$. Therefore, when the frequency of PLL changes, the adder (controller) alternately switches the switched capacitors of the first and second capacitor array. The motivation or suggest would be to allow for control of the oscillation frequency.

Response to Arguments

Applicant argues that Fujii US Patent 5,349,309 discloses switching switches in the first capacitor array and the second capacitor array simultaneously. Applicant claims that a capacitance controller coupled to the first and second capacitor array wherein the capacitance controller alternately switched a switched capacitor in the first capacitor array and a switched capacitor in the second capacitor array based on a frequency control signal. Examiner is reading

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alternately, with regard to the Fujii reference, to mean that the switches in the first and second capacitor array are alternately switched from a closed state to a open state or vice versa.

Allowable Subject Matter

3. Claims 1-21 are allowed.
4. Claims 23-26, 28-31 and 33 -36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. The following is a statement of reasons for the indication of allowable subject matter:
With regards to claim 1, 4, 14 and 18, the prior art of record does not disclose or fairly teach the target voltage being set to be equal to $2V_{th}$, where V_{th} is a threshold voltage of the output transistor. With regards to claims 23,28 and 33 the first capacitor array having a capacitance about twice as large as that of a unit capacitor of a conventional array having a total capacitance being the same as the first total capacitance. With regards to claims 25,30, and35 the second capacitor array having a capacitance about twice as large as that of a unit capacitor of a conventional array having a total capacitance being the same as the second total capacitance.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

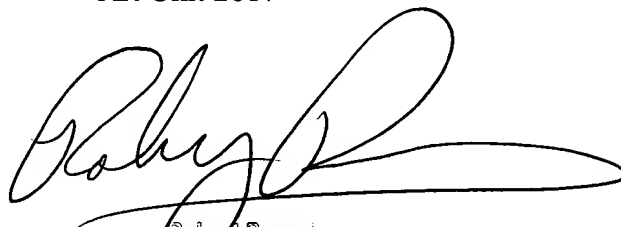
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly E Glenn whose telephone number is (703) 306-5942. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (703) 308-4909. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Kimberly E Glenn
Examiner
Art Unit 2817

keg
July 8, 2003



Robert Pascal
Supervisor, Art Unit 2817